UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,822	02/08/2006	Jinzhan Peng	42P22630	4416

59796   7590   09/16/2008
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EXAMINER
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ART UNIT	PAPER NUMBER
2183	

MAIL DATE	DELIVERY MODE
09/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/567,822	PENG ET AL.
	Examiner	**Art Unit**	
	Jacob Petranek	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2008*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/8/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *4/7/2008*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 09082008

DETAILED ACTION

1.   Claims 1-20 are pending.

2.   The office acknowledges the following papers:

Specification filed on 5/24/2006,

IDS filed on 4/7/2008,

Power of Attorney filed on 5/9/2008,

371 Application documents filed on 5/14/2008.

Priority

3.   The effective filing date for the subject matter defined in the pending claims in this application is 10/31/2005.

Drawings

4.   The Examiner contends that the drawings submitted on 2/8/2006 are acceptable for examination proceedings.

Specification

5.   The disclosure is objected to because of the following informalities:

6.   The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. The Applicant's cooperation is requested in correcting any errors of which the Applicant may become aware.

7.   Appropriate correction is required.

Claim Rejections - 35 USC § 101

8.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.   Claims 1-20 are not limited to tangible embodiments. In view of applicant's disclosure, specifications page 12 lines 5-12, the claims are not limited to tangible embodiments, instead defined as including both tangible embodiments ("components implemented as hardware") and intangible embodiments ("components implemented as software or implemented as combinations of hardware and software"). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

10.   Claims 12-20 are not limited to tangible embodiments. In view of applicant's disclosure, specifications page 11 lines 27-33, the medium is not limited to tangible embodiments, instead defined as including both tangible embodiments ("storage media") and intangible embodiments ("communications media"). As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 112

11.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12.   Claims 7 and 9-10 are rejected under 35 U.S.C. §112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

        Claim 7 recites the term "assigning substantially all other bits." The term

substantially is indefinite.

13.   Claim 9 recites the limitation "the operand" in line 3 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

14.   Claim 10 is rejected due to their dependency.

Claim Rejections - 35 USC § 102

15.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

    A person shall be entitled to a patent unless –

    (b) the invention was patented or described in a printed publication in this or a foreign country or in public
    use or on sale in this country, more than one year prior to the date of application for patent in the United
    States.

16.   Claims 1-5 are rejected under 35 U.S.C. §102(b) as being anticipated by Sokolov

et al. (U.S. 2004/0015873).

17.   As per claim 1:

        Sokolov disclosed a method for managing type information for operands, the

method comprising:

        accomplishing the following results through execution of a single instruction:

                adding an operand tag to a tag stack (Sokolov: Figures 2 and 8 elements

        802 and 812, paragraphs 48 and 51)(The operand stack has a corresponding

stack for references to objects. Inherently, a push operation is performed to

place an item on a stack.); and

updating a stack pointer for the tag stack to recognize the addition of the

operand tag to the tag stack (Sokolov: Figure 2, paragraphs 37-39)(Inherently, a

push operation is performed to place an item on a stack, which also updates a

stack pointer.).

18.   As per claim 2:

Sokolov disclosed a method according to claim 1, wherein the single instruction

comprises a shift instruction (Sokolov: Figure 2, paragraphs 37-39)(Inherently, a push

operation is performed to place an item on a stack, which also updates a stack pointer.

A push operation inherently shifts the placement of all of the contents of the stack by the

movement of the stack pointer.).

19.   As per claim 3:

Sokolov disclosed a method according to claim 2, wherein the shift instruction

comprises a rotate instruction (Sokolov: Figure 2, paragraphs 37-39)(Inherently, a push

operation is performed to place an item on a stack, which also updates a stack pointer.

A push operation inherently shifts the placement of all of the contents of the stack by the

movement of the stack pointer. A shift and rotate operation are one in the same when

the rotate operation doesn't wrap around, which isn't claimed.).

20.   As per claim 4:

Sokolov disclosed a method according to claim 1, further comprising:

accomplishing the following results through execution of one instruction:

removing an operand tag from the tag stack (Sokolov: Figures 2 and 8

elements 802 and 812, paragraphs 48 and 51)(The operand stack has a

corresponding stack for references to objects. Inherently, a pop operation is

performed to remove an item on a stack.); and

updating the stack pointer for the tag stack to recognize the removal of the

operand tag from the tag stack (Sokolov: Figure 2, paragraphs 37-39)(Inherently,

a pop operation is performed to remove an item on a stack, which also updates a

stack pointer.).

21.   As per claim 5:

Sokolov disclosed a method according to claim 4, wherein the one instruction

comprises a shift right instruction (Sokolov: Figure 2, paragraphs 37-39)(Inherently, a

pop operation is performed to remove an item on a stack, which also updates a stack

pointer. A pop operation inherently shifts the placement of all of the contents of the

stack by the movement of the stack pointer.).

22.   Claims 6-11 are rejected under 35 U.S.C. §102(b) as being anticipated by Adl-

Tabatabai et al. (U.S. 6,317,869).

23.   As per claim 6:

Adl-Tabatabai disclosed a method for managing type information for operands,

the method comprising:

shifting a bit value of 1 into a register, in conjunction with creation of a reference

operand (Adl-Tabatabai: Figures 4b and 5b element 555, column 6 lines 39-56)(Shifting

can be defined as switching or exchange of. Thus, the replacement of data in the bit

vector with a bit value of 1 is shifting.); and

shifting a bit value of 0 into the register, in conjunction with creation of a non-

reference operand (Adl-Tabatabai: Figures 4b and 5b element 550, column 6 lines 39-

56)(Shifting can be defined as switching or exchange of. Thus, the replacement of data

in the bit vector with a bit value of 0 is shifting.).

24.   As per claim 7:

Adl-Tabatabai disclosed a method according to claim 6, wherein:

the register serves as a tag stack register, the tag stack register to be used

for storing a stack of operand tags (Adl-Tabatabai: Figure 4b, column 6 lines 8-16 and

25-28), each operand tag to indicate whether a corresponding operand on an operand

stack is to be treated as a reference operand or a non-reference operand (Adl-

Tabatabai: Figure 4b, column 6 lines 8-16)(The bits indicate if an operand makes a

reference to an object or not.); and

the method further comprises initializing the tag stack register by:

assigning a low order bit of the tag stack register to a value of 0 (Adl-Tabatabai:

Figure 5a element 515, column 6 lines 8-16); and

assigning substantially all other bits of the tag stack register to a value of 1 (Adl-

Tabatabai: Figure 5a element 515, column 6 lines 8-16).

25.   As per claim 8:

Adl-Tabatabai disclosed a method according to claim 6, further comprising:

using shift left operations to shift bit values into a low order bit of the register in response to operands being added to an operand stack (Adl-Tabatabai: Figures 4b and 5b element 555, column 6 lines 39-56)(Shifting can be defined as switching or exchange of. Thus, the replacement of data in the bit vector with a bit value of 1 is shifting. Adding a value to the low order bit in the bit vector reads upon the limitation.).

26.   As per claim 9:

Adl-Tabatabai disclosed a method according to claim 6, further comprising:

right shifting bit values in the register in conjunction with removal of the operand (Adl-Tabatabai: Figures 4b and 5b element 550, column 6 lines 39-56)(Shifting can be defined as switching or exchange of. Thus, the replacement of data in the bit vector with a bit value of 0 is shifting.).

27.   As per claim 10:

Adl-Tabatabai disclosed a method according to claim 9, further comprising:

shifting the bit value of 1 into a high order bit of the register in conjunction with removal of the operand (Adl-Tabatabai: Figures 4b and 5b element 555, column 6 lines 39-56)(Shifting can be defined as switching or exchange of. Thus, the replacement of data in the bit vector with a bit value of 1 is shifting. Adding a value to the high order bit in the bit vector reads upon the limitation.).

28.   As per claim 11:

Adl-Tabatabai disclosed a method according to claim 6, wherein:

the register serves as a tag stack register, the tag stack register to be used for storing a stack of operand tags (Adl-Tabatabai: Figure 4b, column 6 lines 8-16 and

25-28), each operand tag to indicate whether a corresponding operand on an operand

stack is to be treated as a reference operand or a non-reference operand (Adl-

Tabatabai: Figure 4b, column 6 lines 8-16)(The bits indicate if an operand makes a

reference to an object or not.); and

the method further comprises:

treating a highest order bit with the value of 0 in the tag stack register as a stack

pointer (Adl-Tabatabai: Figure 5a element 525, column 6 lines 28-38); and

determining a depth of the stack of operand tags, based at least in part on a

location of the stack pointer (Adl-Tabatabai: Figure 5a element 525, column 6 lines 28-

38).

Claim Rejections - 35 USC § 103

29.   The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

30.   Claims 12-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over

Sokolov et al. (U.S. 2004/0015873).

31.   As per claim 12:

Sokolov disclosed a processing system with control logic for managing type

information for operands, the processing system comprising:

a processor (Sokolov: Figure 7, paragraph 47)(It's obvious to one of ordinary skill in the art that a processor executes the bytecodes and translated bytecodes.);

a machine-accessible medium responsive to the processor (Sokolov: Figure 7, paragraph 47); and

instructions in the machine-accessible medium, the instructions to implement at least part of a virtual machine when executed by a processing system (Sokolov: Figure 7, paragraph 47)(It's obvious to one of ordinary skill in the art that the Java Bytecode implement a virtual machine and are executed by a processor.), the virtual machine to accomplishing the following results through execution of a single instruction:

adding an operand tag to a tag stack (Sokolov: Figures 2 and 8 elements 802 and 812, paragraphs 48 and 51)(The operand stack has a corresponding stack for references to objects. Inherently, a push operation is performed to place an item on a stack.); and

updating a stack pointer for the tag stack to recognize the addition of the operand tag to the tag stack (Sokolov: Figure 2, paragraphs 37-39)(Inherently, a push operation is performed to place an item on a stack, which also updates a stack pointer.).

32.   As per claim 13:

The additional limitation(s) of claim 13 basically recite the additional limitation(s) of claim 2. Therefore, claim 13 is rejected for the same reason(s) as claim 2.

33.   As per claim 14:

The additional limitation(s) of claim 14 basically recite the additional limitation(s) of claim 3. Therefore, claim 14 is rejected for the same reason(s) as claim 3.

34.   As per claim 15:

The additional limitation(s) of claim 15 basically recite the additional limitation(s)

of claim 4. Therefore, claim 15 is rejected for the same reason(s) as claim 4.

35.   As per claim 16:

Sokolov disclosed a processing system according to claim 12 wherein the

processor supports a little-endian byte order (Official notice is given that processors

store data in either little-endian or big-endian byte order. Thus, it's obvious to one of

ordinary skill in the art that the system of Sokolov stores data in little-endian byte

order.).

36.   As per claim 17:

Claim 17 essentially recites the same limitations of claim 12. Therefore, claim 17

is rejected for the same reasons as claim 12.

37.   As per claim 18:

The additional limitation(s) of claim 18 basically recite the additional limitation(s)

of claim 2. Therefore, claim 18 is rejected for the same reason(s) as claim 2.

38.   As per claim 19:

The additional limitation(s) of claim 19 basically recite the additional limitation(s)

of claim 3. Therefore, claim 19 is rejected for the same reason(s) as claim 3.

39.   As per claim 20:

The additional limitation(s) of claim 20 basically recite the additional limitation(s)

of claim 4. Therefore, claim 20 is rejected for the same reason(s) as claim 4.

Conclusion

The following is text cited from 37 CFR 1.111(c): In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Merck (U.S. 7,302,550), taught having a stack of reference data for operands.

Pickett et al. (U.S. 7,024,537), taught data speculation based on addressing patterns.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Petranek whose telephone number is 571-272-5988. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Jacob Petranek
Examiner, Art Unit 2183

/Aimee J Li/
Primary Examiner, Art Unit 2183